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## ABSTRACT

A laser device which can be used as a light source for an exposure device, can be downsized, and is easy to maintain. A laser beam (LB6) emitted from a DFB (Distributed feedback) semiconductor laser, for example, and amplified by an optical fiber amplifier is passed through non-linear optical crystals (502, 503, 504) to be sequentially doubled in frequency to thereby generate an ultraviolet-region laser beam (LB5) consisting of an octuple wave. A GdYCOB, that is,  $Gd_xY_{1-x}Ca_4O(BO_3)_3$  crystal ( $0 \leq x \leq 1$ ) is used for the non-linear optical crystal (503) for a double wave-to-quadruple wave conversion, and a KAB, that is,  $K_2Al_2B_4O_7$  crystal for the non-linear optical crystal (504) for a quadruple wave-to-octuple wave conversion. The non-linear optical crystals (502-504) are all fine-tuned in phase match angle by temperature controllers (521-523) respectively.